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1 An optimum virtual paths network-based atm network using the genetic algorithm
Surat Tanterdtid, Worawit Steanputtanagul, Watit Benjapolakul
May 1998 **International Journal of Network Management**, Volume 8 Issue 3
Publisher: John Wiley & Sons, Inc.
Full text available: pdf(164.39 KB) Additional Information: full citation, abstract, references, index terms

In this article, we propose the use of the Genetic Algorithm (GA) to optimize a Virtual Paths (VPs) network and describe a simple coding technique. © 1998 John Wiley & Sons, Ltd.

2 Optimum watchman routes
W Chin, S Ntafos
August 1986 **Proceedings of the second annual symposium on Computational geometry**
Publisher: ACM Press
Full text available: pdf(741.01 KB) Additional Information: full citation, abstract, references, citings, index terms

In this paper we consider the problem of finding shortest routes from which every point in a given space is visible (watchman routes). We show that the problem is NP-hard when the space is a polygon with holes even if the polygon and the holes are convex or rectilinear. The problem remains NP-hard for simple polyhedra. We present O(n) and O (nlogn) algorithms to find a shortest route in a simple rectilinear monotone polygon and a simple rectilinear polygon respectively, where n is the number ...

3 Transmission-efficient routing in wireless networks using link-state information
J. J. Garcia-Luna-Aceves, Marcelo Spohn
June 2001 **Mobile Networks and Applications**, Volume 6 Issue 3
Publisher: Kluwer Academic Publishers
Full text available: pdf(315.33 KB) Additional Information: full citation, abstract, references, index terms

The efficiency with which the routing protocol of a multihop packet-radio network uses transmission bandwidth is critical to the ability of the network nodes to conserve energy. We present and verify the source-tree adaptive routing (STAR) protocol, which we show through simulation experiments to be far more efficient than both table-driven and on-demand routing protocols proposed for wireless networks in the recent past. A router in STAR communicates to its neighbors the parameters of its ...

Keywords: link-state routing protocol, mobile wireless networks, source routing tree

4 A simple approximation to minimum-delay routing

Srinivas Vutukury, J. J. Garcia-Luna-Aceves
August 1999 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '99**, Volume 29 Issue 4
Publisher: ACM Press

Full text available: pdf(1.54 MB) Additional Information: full citation, abstract, references, citings, index terms

The conventional approach to routing in computer networks consists of using a heuristic to compute a single shortest path from a source to a destination. Single-path routing is very responsive to topological and link-cost changes; however, except under light traffic loads, the delays obtained with this type of routing are far from optimal. Furthermore, if link costs are associated with delays, single-path routing exhibits oscillatory behavior and becomes unstable as traffic loads increase. On th ...

5 Transaction papers: The stable paths problem and interdomain routing
Timothy G. Griffin, F. Bruce Shepherd, Gordon Wilfong
April 2002 **IEEE/ACM Transactions on Networking (TON)**, Volume 10 Issue 2
Publisher: IEEE Press

Full text available: pdf(414.12 KB) Additional Information: full citation, abstract, references, citings, index terms

Dynamic routing protocols such as RIP and OSPF essentially implement distributed algorithms for solving the *shortest paths problem.* The border gateway protocol (BGP) is currently the only interdomain routing protocol deployed in the Internet. BGP does not solve a shortest paths problem since any interdomain protocol is required to allow policy-based metrics to override distance-based metrics and enable autonomous systems to independently define their routing policies with little or no glo ...

Keywords: BGP, Border Gateway Protocol, interdomain routing, internet routing, path vector protocols, stable routing

6 Routing and transport: Geometric spanner for routing in mobile networks
Jie Gao, Leonidas J. Guibas, John Hershberger, Li Zhang, An Zhu
October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc networking & computing**
Publisher: ACM Press

Full text available: pdf(275.36 KB) Additional Information: full citation, abstract, references, citings, index terms

We propose a new routing graph, the Restricted Delaunay Graph (RDG), for ad hoc networks. Combined with a node clustering algorithm RDG can be used as an underlying graph for geographic routing protocols. This graph has the following attractive properties: (1) it is a planar graph; (2) between any two nodes there exists a path in the RDG whose length, whether measured in terms of topological or Euclidean distance, is only a constant times the optimum length possible; and (3) the graph can be mai ...

7 Merit: A unified framework for routing protocol assessment in mobile AD Hoc networks
András Faragó, Violet R. Syrotiuk
July 2001 **Proceedings of the 7th annual international conference on Mobile computing and networking**
Publisher: ACM Press

Full text available: pdf(256.20 KB) Additional Information: full citation, abstract, references, citings, index terms

MERIT is a framework to assess routing protocols in mobile Ad hoc networks (manets). It is based on the novel concept of a *shortest mobile path* (SMP) in a *mobile graph*, generalizing the traditional shortest path concept for the mobile environment. As a standard measure for routing protocols in a manet, the MERIT framework proposes the mean ratio of the cost of the actually used route to the cost of the optimal mobile path,

under the same history of link metrics in the changing n ...

8 Non-tree routing for reliability and yield improvement

Andrew B. Kahng, Bao Liu, Ion I. M□andoiu

November 2002 **Proceedings of the 2002 IEEE/ACM international conference on Computer-aided design**

Publisher: ACM Press

Full text available: pdf(146.04 KB) Additional Information: full citation, abstract, references, citings, index terms

We propose to introduce redundant interconnects for manufacturing yield and reliability improvement. By introducing redundant interconnects, the potential for open faults is reduced at the cost of increased potential for short faults; overall, manufacturing yield and fault tolerance can be improved. We focus on a post-processing, tree augmentation approach which can be easily integrated in current physical design flows. Our contributions are as follows:• We formulate the problem as a varian ...

9 Session 4B: Oblivious routing in directed graphs with random demands

MohammadTaghi Hajiaghayi, Jeong Han Kim, Tom Leighton, Harald Räcke

May 2005 **Proceedings of the thirty-seventh annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available: pdf(511.47 KB) Additional Information: full citation, abstract, references, index terms

Oblivious routing algorithms for general undirected networks were introduced by Räcke, and this work has led to many subsequent improvements and applications. More precisely, Räcke showed that there is an oblivious routing algorithm with polylogarithmic competitive ratio (w.r.t. edge congestion) for any undirected graph. Comparatively little positive results are known about oblivious routing in general *directed* networks. Using a novel approach, we present the first oblivious rou ...

Keywords: demand distributions, directed graphs, oblivious routing

10 Routing 1: Efficient geographic routing in multihop wireless networks

Seungjoon Lee, Bobby Bhattacharjee, Suman Banerjee

May 2005 **Proceedings of the 6th ACM international symposium on Mobile ad hoc networking and computing MobiHoc '05**

Publisher: ACM Press

Full text available: pdf(257.99 KB) Additional Information: full citation, abstract, references, index terms

We propose a new link metric called *normalized advance (NADV)* for geographic routing in multihop wireless networks. NADV selects neighbors with the optimal trade-off between proximity and link cost. Coupled with the local next hop decision in geographic routing, NADV enables an adaptive and efficient cost-aware routing strategy. Depending on the objective or message priority, applications can use the NADV framework to minimize various types of link cost.We present efficient methods for li ...

Keywords: geographic routing, link cost estimation, routing metric, wireless multihop networks

11 A connection handover protocol for LEO satellite ATM networks

Hüseyin Uzunalioğlu, Wei Yen, Ian F. Akyildiz

September 1997 **Proceedings of the 3rd annual ACM/IEEE international conference on Mobile computing and networking**

Publisher: ACM Press

Full text available: pdf(1.93 MB) Additional Information: full citation, references, citings, index terms

Keywords: ATM, handover, re-routing, satellite communications

12 VIA design rule consideration in multi-layer maze routing algorithms
Jason Cong, Jie Fang, Kei-Yong Khoo
April 1999 **Proceedings of the 1999 international symposium on Physical design**
Publisher: ACM Press
Full text available: pdf(1.21 MB) Additional Information: full citation, references, citings, index terms

13 Compact routing with minimum stretch
Lenore J. Cowen
January 1999 **Proceedings of the tenth annual ACM-SIAM symposium on Discrete algorithms**
Publisher: Society for Industrial and Applied Mathematics
Full text available: pdf(616.14 KB) Additional Information: full citation, references, citings, index terms

14 Routing protocols: MAP: medial axis based geometric routing in sensor networks
Jehoshua Bruck, Jie Gao, Anxiao (Andrew) Jiang
August 2005 **Proceedings of the 11th annual international conference on Mobile computing and networking MobiCom '05**
Publisher: ACM Press
Full text available: pdf(1.68 MB) Additional Information: full citation, abstract, references, index terms

One of the challenging tasks in the deployment of dense wireless networks (like sensor networks) is in devising a routing scheme for node to node communication. Important consideration includes scalability, routing complexity, the length of the communication paths and the load sharing of the routes. In this paper, we show that a compact and expressive abstraction of network connectivity by the medial axis enables efficient and localized routing. We propose MAP, a Medial Axis based naming and rou ...

Keywords: medial axis, routing, sensor networks, system design

15 Mobile computing and applications (MCA): Probabilistic multi-path vs. deterministic single-path protocols for dynamic ad-hoc network scenarios
Christopher L. Barrett, Stephan J. Eidenbenz, Lukas Kroc, Madhav V. Marathe, James P. Smith
March 2005 **Proceedings of the 2005 ACM symposium on Applied computing SAC '05**
Publisher: ACM Press
Full text available: pdf(240.57 KB) Additional Information: full citation, abstract, references, index terms

We investigate the performance of different protocol stacks under various application scenarios. Our method of choice is a full-fledged simulation in QualNet, testing the complete protocol stack over fairly large-scale networks. We find that the relative ranking of protocols strongly depends on the network scenario, the session load, the mobility level, and the choice of protocol parameters. We show that the Parametric Probabilistic Protocols, which we generalize from their original definition, ...

Keywords: mobility, probabilistic routing, scenarios, wireless networks

16 Session 8C: Oblivious routing on node-capacitated and directed graphs
Mohammad T. Hajiaghayi, Robert D. Kleinberg, Tom Leighton, Harald Räcke
January 2005 **Proceedings of the sixteenth annual ACM-SIAM symposium on Discrete algorithms**
Publisher: Society for Industrial and Applied Mathematics

Full text available: pdf(841.24 KB) Additional Information: full citation, abstract, references

Oblivious routing algorithms for general undirected networks were introduced by Räcke [17], and this work has led to many subsequent improvements and applications. Comparatively little is known about oblivious routing in general *directed* networks, or even in undirected networks with node capacities.We present the first non-trivial upper bounds for both these cases, providing algorithms for k-commodity oblivious routing problems with competitive ratio $O(\sqrt{k}\log$...

17 An optimum channel-routing algorithm for polycell layouts of integrated circuits

B. W. Kernighan, D. G. Schweikert, G. Persky

June 1973 **Proceedings of the 10th workshop on Design automation**

Publisher: IEEE Press

Full text available: pdf(762.62 KB) Additional Information: full citation, abstract, references, citings, index terms

This paper presents an algorithm for finding optimum routings for interconnection paths in a channel between two parallel rows of circuit cells. The algorithm, although based on branch and bound, has provided optimum routings for circuits with 50 to 60 nets in a minute or two of computing.

18 A constant-factor approximation algorithm for packet routing, and balancing local vs. global criteria

Aravind Srinivasan, Chung-Piaw Teo

May 1997 **Proceedings of the twenty-ninth annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available: pdf(1.32 MB) Additional Information: full citation, references, citings, index terms

Keywords: approximation algorithms, covering integer programs, discrete ham-sandwich theorems, linear programming, packet routing, randomized algorithms, randomized rounding, rounding theorems

19 Footprint handover rerouting protocol for low earth orbit satellite networks

Hüseyin Uzunalioğlu, Ian F. Akyildiz, Yelena Yesha, Wei Yen

October 1999 **Wireless Networks**, Volume 5 Issue 5

Publisher: Kluwer Academic Publishers

Full text available: pdf(196.28 KB) Additional Information: full citation, references, citings, index terms

20 MERIT: a scalable approach for protocol assessment

András Faragó, Violet R. Syrotiuk

October 2003 **Mobile Networks and Applications**, Volume 8 Issue 5

Publisher: Kluwer Academic Publishers

Full text available: pdf(210.30 KB) Additional Information: full citation, abstract, references, citings, index terms

MERIT is a framework that can be used to assess routing protocols in mobile ad hoc networks (manets). It uses the novel concept of a *shortest mobile path* (SMP) in a *mobile graph*, a generalization of the shortest path problem for mobile environments. As a measure for routing protocol assessment, we propose the mean ratio of the cost of the route used by a protocol to the cost of the optimal mobile path for the same network history. The cost reflects that the route used in a session ...

Keywords: mobile ad hoc networks, protocol assessment framework, routing protocols, scalability

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